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Zur Grundlegung der Tonpsychologie. By GÉZA RÉVÉSZ. Leipzig. Veit and Co., 1913. 148 pp.

The important feature of this book is an attempt to demonstrate experimentally the existence of a new qualitative attribute of pure tones. This second attribute the author calls "quality," as distinguished from the other qualitative attribute of pitch. The basis for the distinction is found in two kinds of "similarity": (1) that of tones lying near together (pitch similarity), and (2) that of tones which stand in the octave relation (octave similarity). While the latter has long been recognized in music, psychologists are not agreed whether it is due to an inherent attribute (Brentano), or to some extraneous factor such as partials (Helmholtz), or to fusion (Stumpf). Révész meets the argument of Helmholtz by employing pure tones, and offers experimental observations in reply to Stumpf.

His first task is to demonstrate octave similarity. This he accomplishes by a method of paired comparison; thus a standard series, such as c c^1 c^2 is compared with the series g^1 c^2 f^2 . The observers report that although the tones of the standard series are further apart, they are less "surprising" and more alike; later they report that the tones are "identical" or are repeated at different pitches. The observation is easy enough, although at first there is some difficulty in taking up the proper attitude of disregarding pitch similarity and confining the attention to octave similarity. The tonal scale, therefore, falls into a single linear series, and into a periodically recurring series; the first may be demonstrated by a quick *glissando* on the piano keyboard, the latter by a slow *glissando* with attention directed to the repetition of a tone.

Révész next proceeds to prove that the two kinds of similarity are based upon the two attributes of pitch and "quality." The attributes must be—and are—independently variable. Alteration of "quality" without alteration of pitch is seen in cases where observers are unable to judge whether a tone is higher or lower than another tone, and yet are able to report a difference of "quality." It frequently happens that unmusical observers are unable to report differences of pitch in intervals as large as thirds or fifths, although the difference of "quality" is clearly recognized. Changes of pitch without change of quality, on the other hand, are observed under normal conditions (1) in tones which stand in the octave relation, and (2) in tones below the lower limit and above the upper limit of the musical scale. As further evidence of the independent variability of the two attributes, the author offers results, previously published, which he obtained in the study of a case of defective hearing. For the defective observer, the "quality" of all tones over a certain range of the scale (g^2 - d -sharp*) was the same; i. e., all tones in this area had the same quality as that of the tone g -sharp. Yet he was able, in 69% of the trials made, to judge the absolute pitch of all tones in the same area with no greater error than a semitone. Révész also believes that noise, in proportion as it is removed from tone, lacks "quality," while it always has a more or less definite pitch. Furthermore, the absence of the "qualitative" attribute in certain pathological or otherwise abnormal cases suffices to explain certain forms of melody-deafness.

Further evidence of the existence of the two attributes is found in cases of absolute pitch memory. Some observers are able to report immediately, with subjective certainty and objective correctness, the

scale-name of the tone, but have difficulty in reporting the octave to which it belongs. Other observers have less difficulty in recognizing the approximate pitch of the tone, but show little subjective certainty and make frequent errors. The former type of observer employs the "qualitative" attribute as his criterion; the individual characteristic of the tone, its *c*-ness or *g*-ness, is recognized. The latter type of observer bases his judgment upon pitch. In most instances of absolute hearing, however, both criteria are employed.

Finally, the impression of intervals rests upon a combination of the two attributes. The separation of the tonal scale into two series which are independently variable is, after all, an abstraction; in actual experience we can no more separate the two attributes than we can separate the qualities of hue and tint in the colour series. It is for this reason that compound intervals (10ths, 12ths, etc.) do not sound like their corresponding simple intervals (3ds, 5ths, etc.),—as we should expect if the impression were based on "quality" alone. And it is for a similar reason that a normal interval (*c*—*e*) does not sound the same when inverted (*e*—*c*). There is, however, some ground for belief that within the octave "qualitative" difference obtains between inverted intervals,—a difference that results from the relative positions of the terms of the two intervals in the "qualitative" series; so that, if an individual were pitch-deaf from birth, he might still be able to differentiate inverted intervals.

The author's argument, as a whole, is impressive. Despite the fact that his conclusions are based partly on results obtained from a single case of defective hearing, and largely on experiments with the musical intervals of the tempered scale, one can hardly escape the conviction that he has succeeded in the demonstration of the two kinds of similarity, and has made out a strong case in favor of the dual attributive explanation. We regret his choice of the term "quality" as a name for the new attribute; some such term as "character" would have been just as descriptive, and the possibility of confusion would have been avoided.

H. P. WELD.

Cornell University.

Backward and Feeble-minded Children. By E. B. HUEY. Baltimore, Warwick and York, 1912, pp. 213.

In this volume Huey has brought together some valuable material on the subject of mental defect. Recognizing the fact that the bulk of our feeble-minded population is in the high grade moron and border-line groups, and that the detection and care of these individuals is of the highest importance to society, Huey devotes the greater part of this book to detailed clinical pictures of thirty-two of these border-line cases. Each case was studied by the author personally during his residence in the Lincoln State School and Colony (Illinois) as head of the psychological department.

The studies of these cases show painstaking care and insight. Although Huey believes that the Binet scale is the best available collection of mental tests, and although he employs it as a measure of the psychological age of his subjects, he supplements it with other tests,—such as association reactions, orientation as to the points of the compass, correct placing of photographs of nine of the buildings of the institution on a rectangular table top representing the grounds, etc. Moreover, he establishes personal relations with his patient, plays games with him, and watches and interprets his reactions to as many situations as possible.